



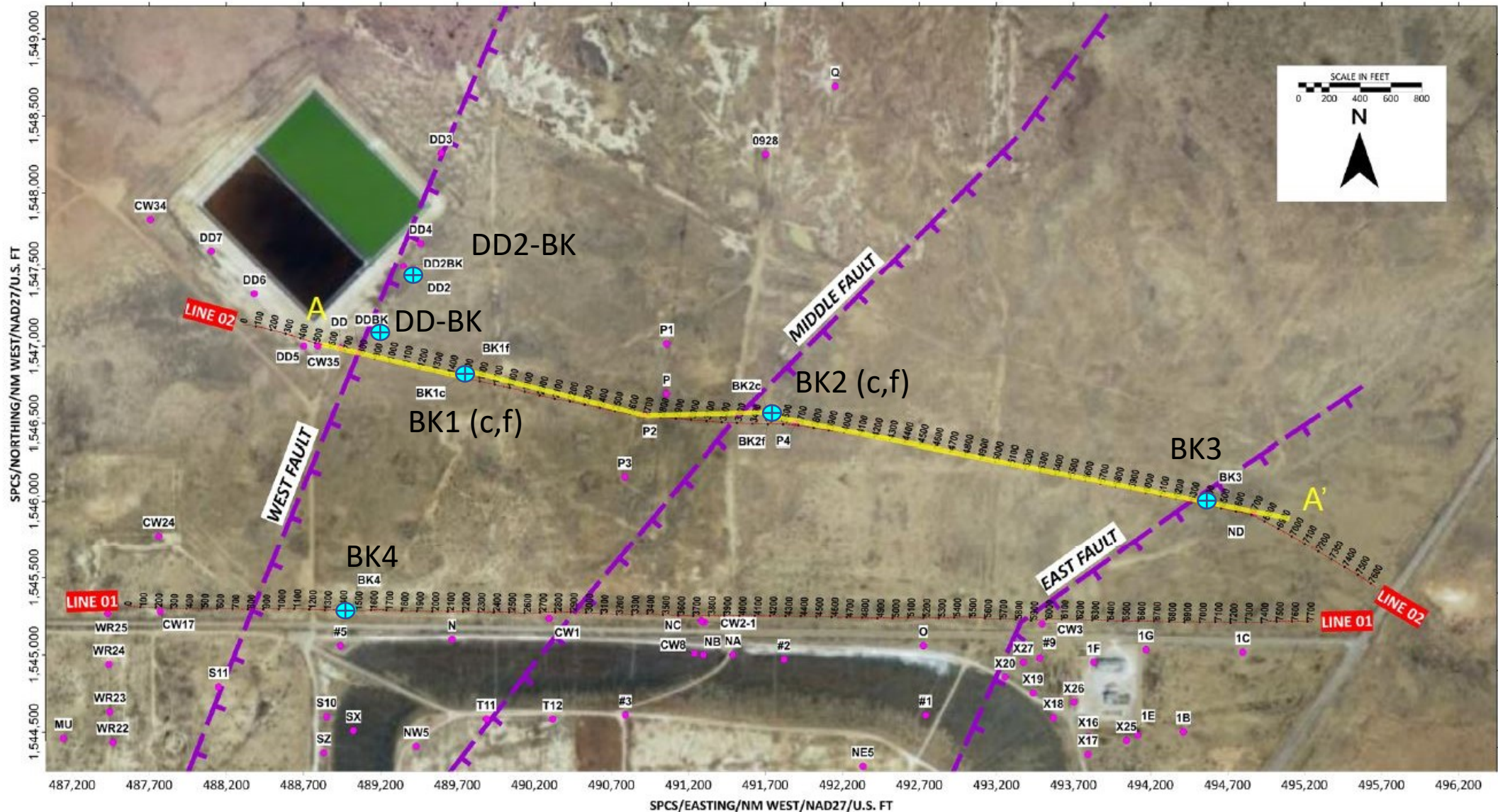
BACKGROUND REASSESSMENT HOMESTAKE NPL SITE

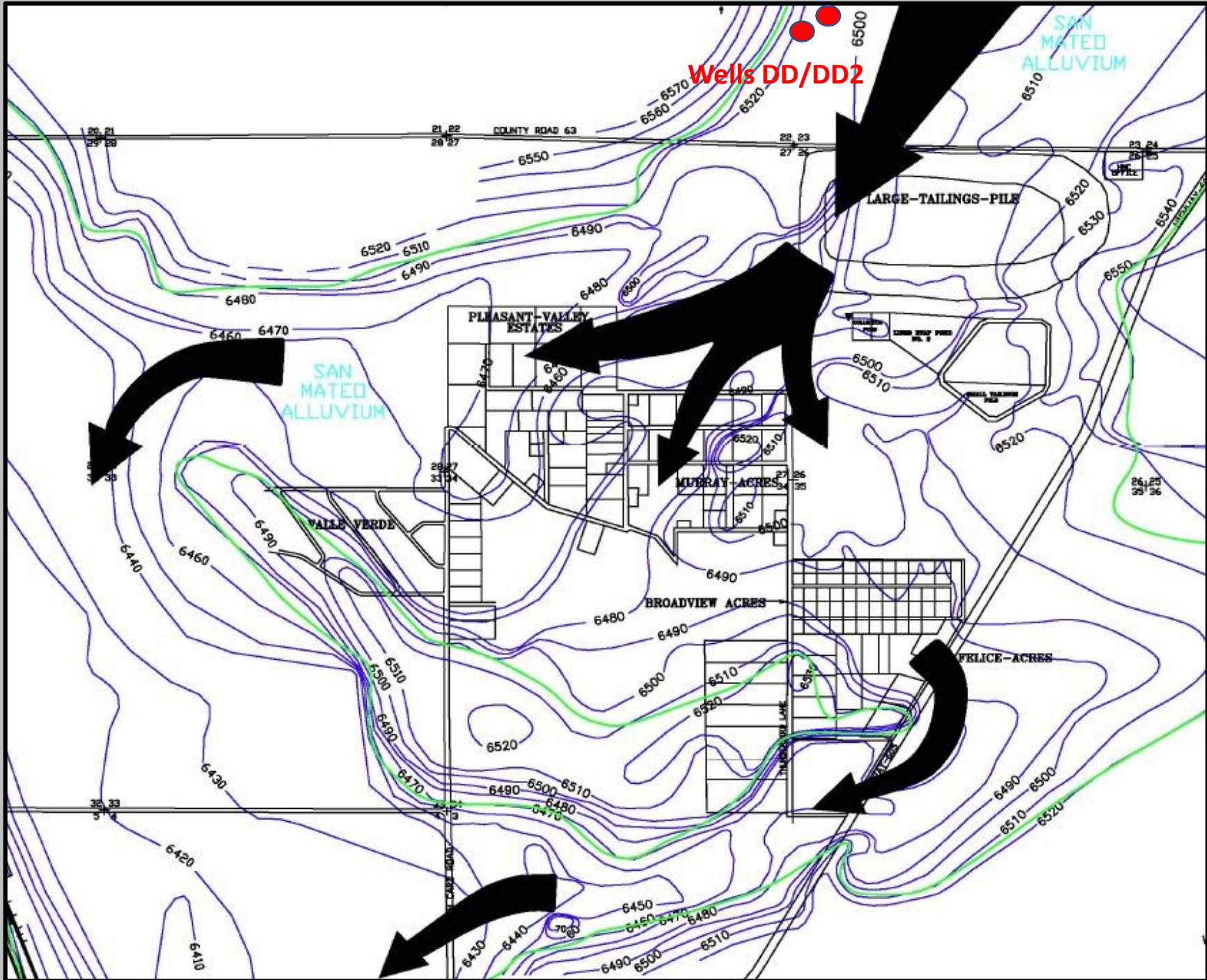
EPA/NM/HOMESTAKE MEETING

September 17, 2019

Santa Fe, NM

ARCADIS SUPPLEMENTAL BACKGROUND STUDY AREA





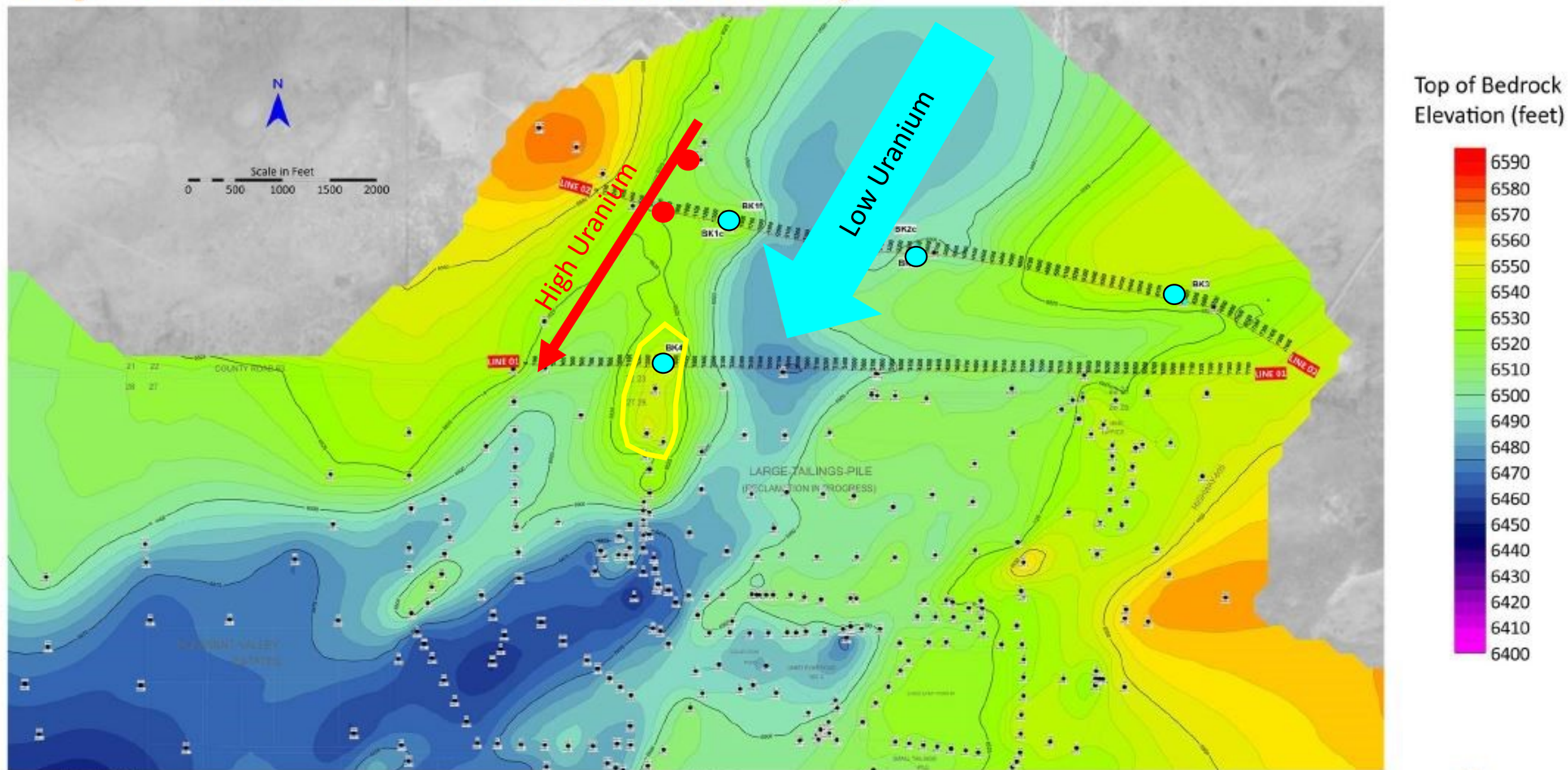
POST RECLAMATION ESTIMATED BASE FLOW ALLUVIAL AQUIFER

Base of Alluvium
Structure Contour Map

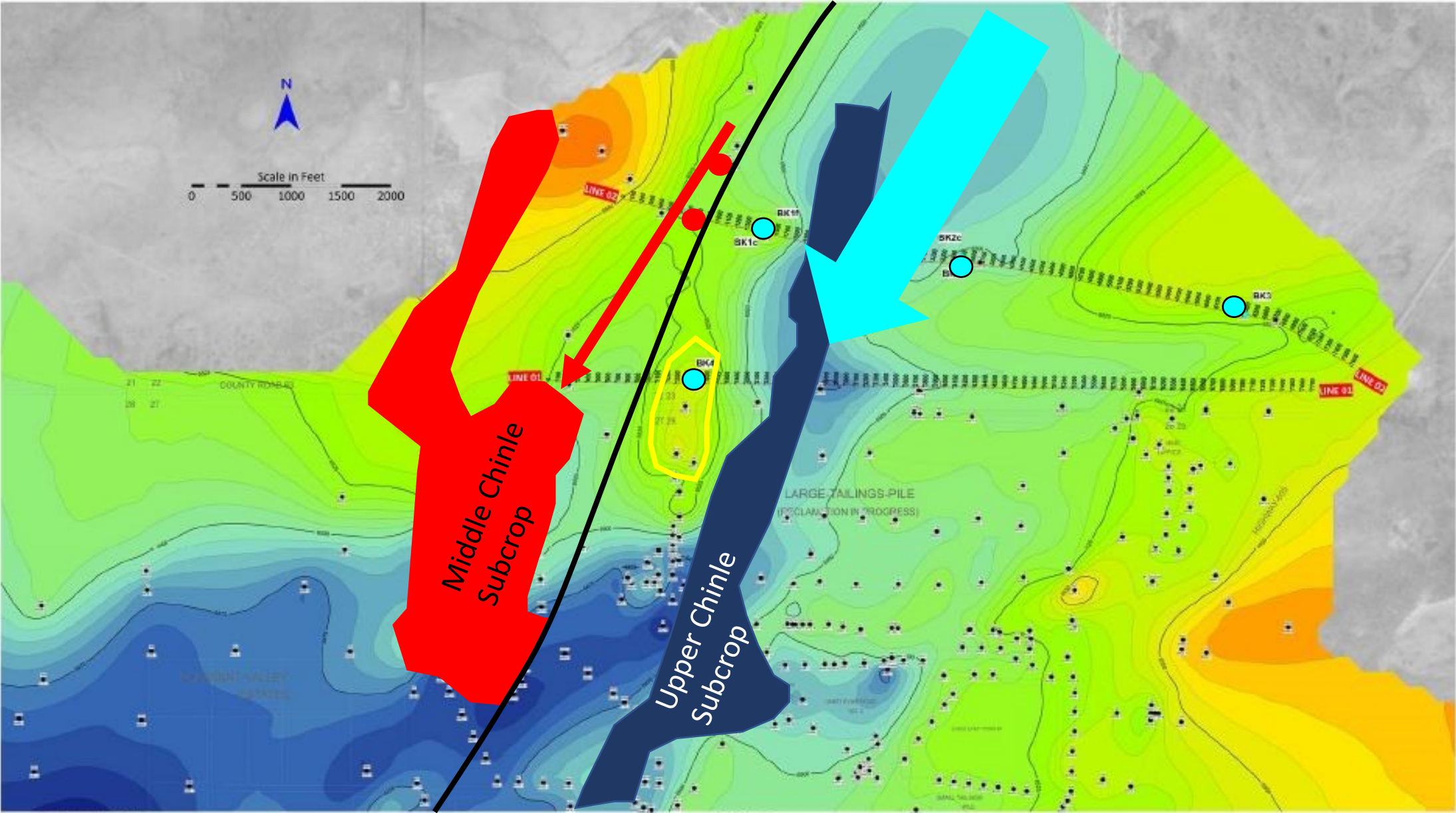
Ground Water
Flow Path Proposed
By HMC

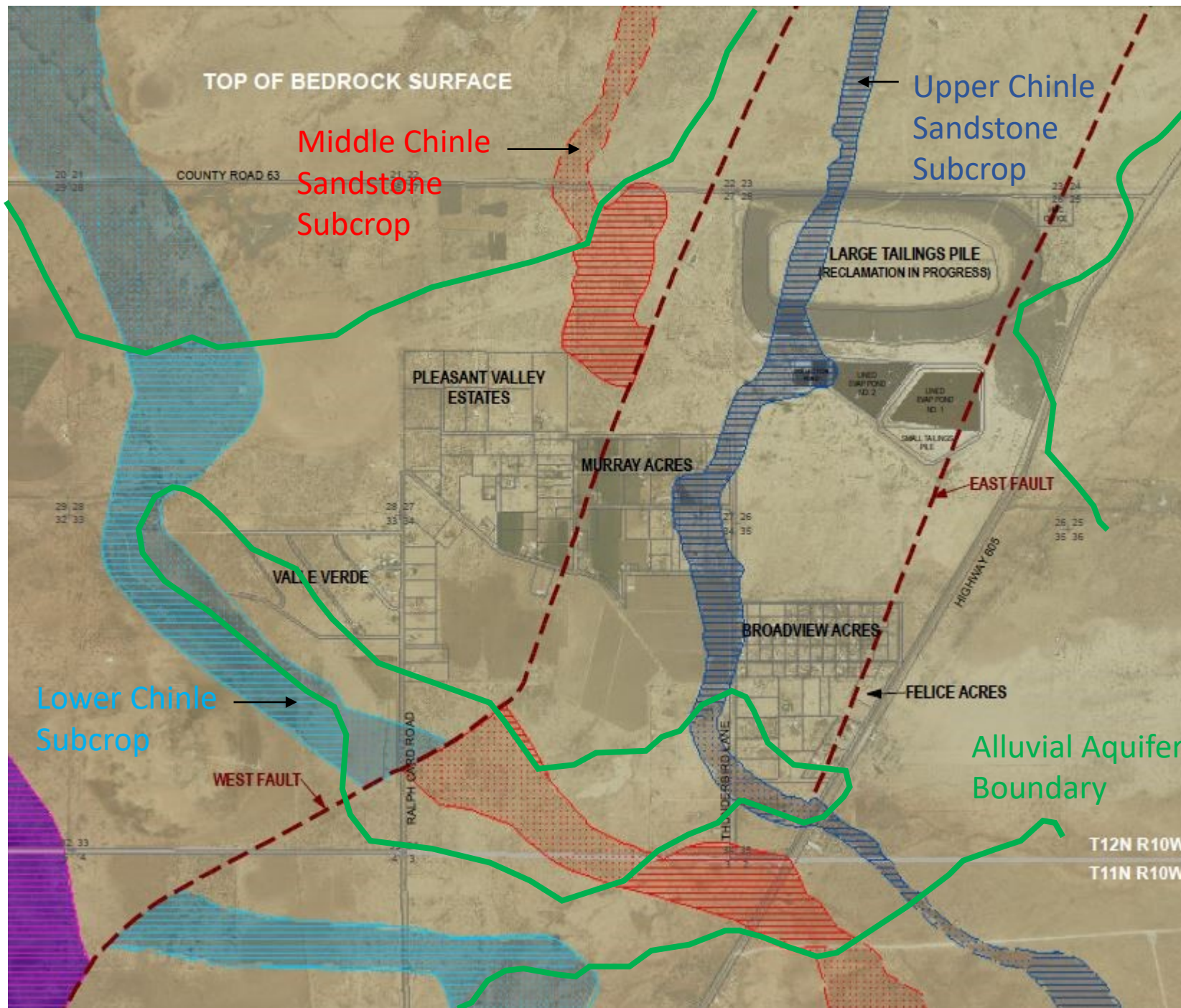
From HMC
Background Report

Top of bedrock elevation map



Top of bedrock elevation map





MAP OF BEDROCK SUBCROP AND RECENT ALLUVIAL AQUIFER BOUNDARY

MODIFIED FROM HOMESTAKE CAP
DRAFT – FOR DISCUSSION PURPOSES ONLY

Modified From HMC 2015
Background Report

Well DD

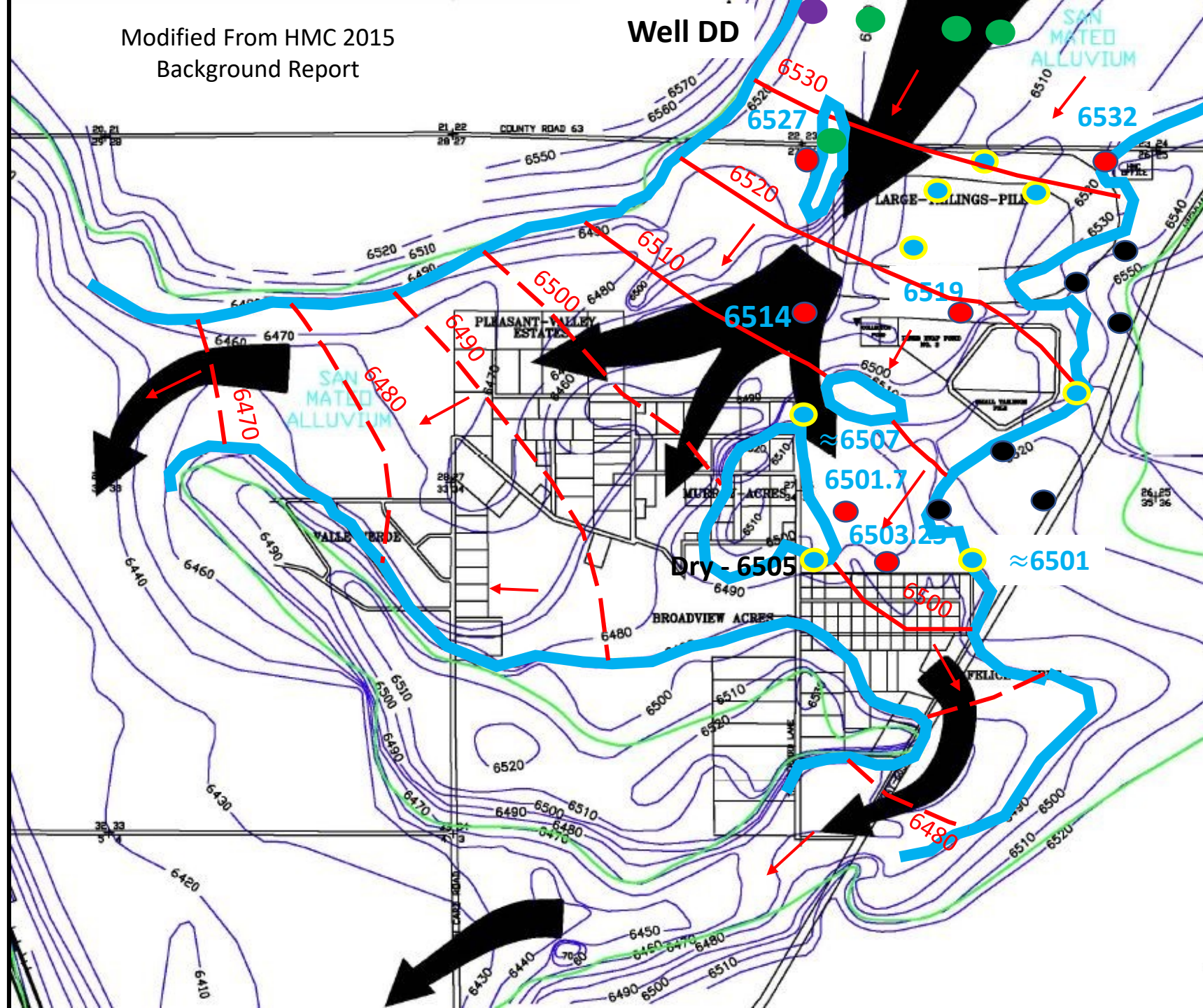
1960 CHAVEZ BORINGS

- Dry Boring
- Potential Water
- Water
- Estimate 1960 Aquifer Boundary
- Water Level Contour

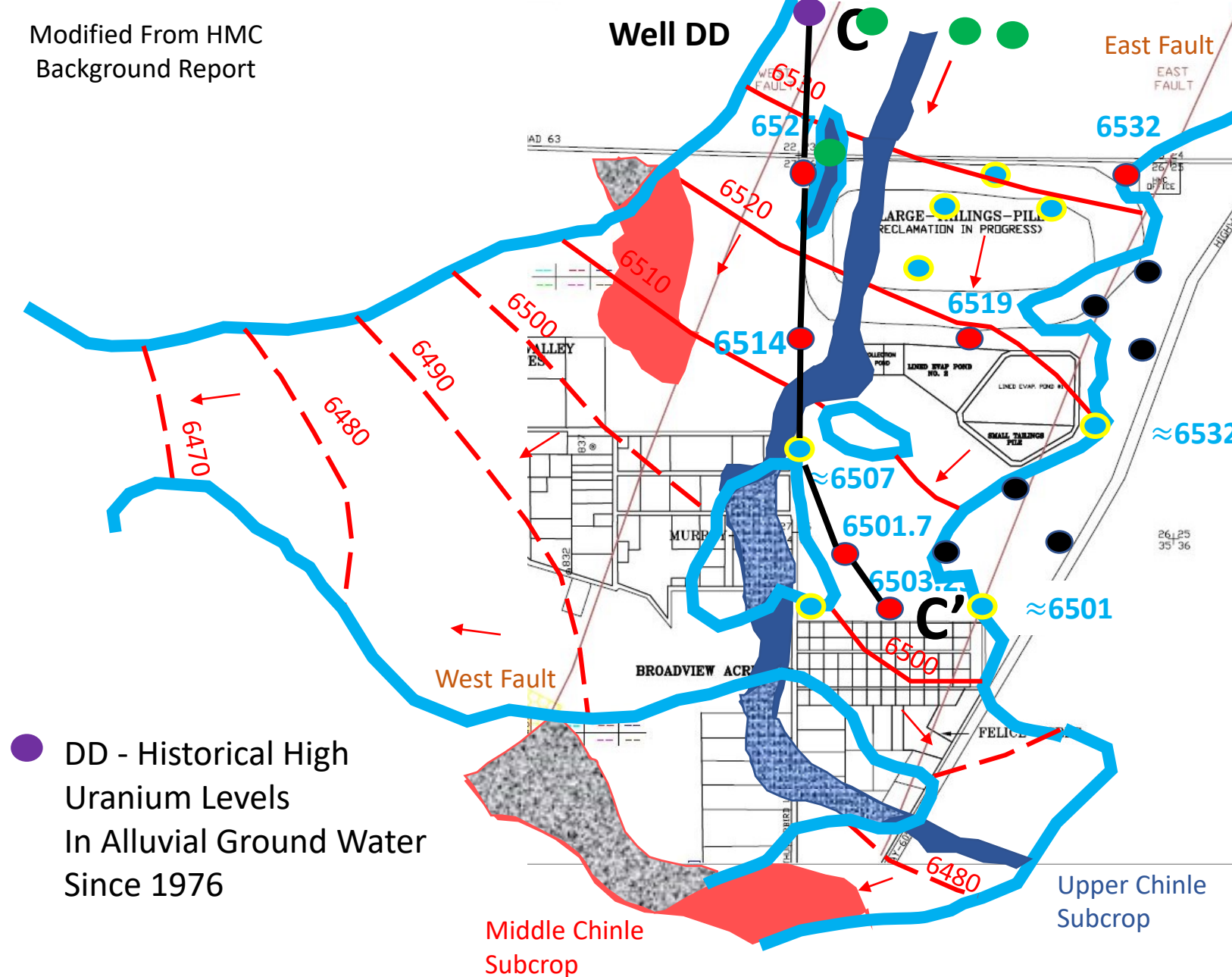
1960 ALLUVIAL AQUIFER BOUNDARY AND BASE FLOW

Based on 1961 Chavez
Report

- BK and P Wells
- DD



Modified From HMC
Background Report



1960 CHAVEZ BORINGS

- Dry Boring
- Potential Water
- Water
- Estimated 1960 Aquifer Boundary
- Water Level Contour

1960 ALLUVIAL AQUIFER BOUNDARY AND BASE FLOW

Based on 1961 Chavez
Report

- BK and P Wells
- DD

BACKGROUND LEVELS ESTABLISHED IN 2004

Selected as Cleanup Levels

| Constituent | Federal MCL | Alluvium | Chinle Mixing Zone | Upper Chinle Non-mixing Zone | Middle Chinle Non-Mixing Zone | Lower Chinle Non-mixing Zone |
|--------------------|----------------|----------|-----------------------|------------------------------------|-------------------------------------|------------------------------------|
| Uranium (µg/L) | 30 | 160 | 180 | 90 | 70 | 30 |
| Selenium (µg/L) | 50 | 320 | 140 | 60 | 70 | 320 |

Approved by NRC and State
Agreed with by EPA

EPA AND NMED TENTATIVE POSITION

- ALLUVIAL AQUIFER – CURRENT BACKGROUND ACCEPTABLE
- BEDROCK AQUIFERS – WHERE DD WATER DOES NOT RECHARGE AQUIFER, TAKE OUT OF EQUATION FOR CALCULATING MIXING ZONE BACKGROUND

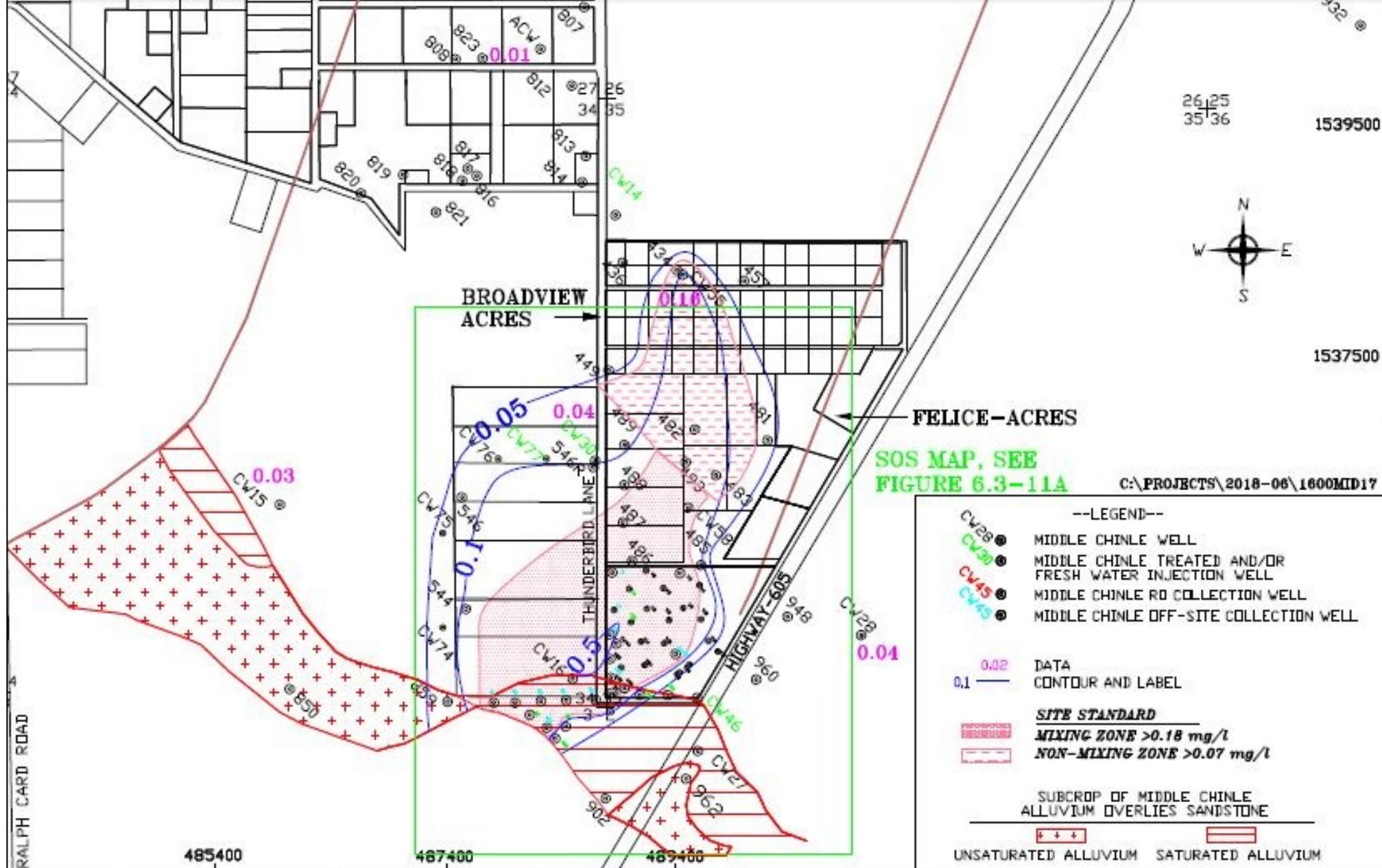
MIXING ZONE AQUIFERS FOR BACKGROUND RECALCULATION

- MIXING ZONE – UPPER CHINLE, CENTRAL FAULT BLOCK
- MIXING ZONE – MIDDLE CHINLE, CENTRAL AND EAST FAULT BLOCK

MIXING ZONE AQUIFERS WITH ACCEPTABLE BACKGROUND ASSESSMENT

- MIXING ZONE – LOWER CHINLE, ALL FAULT BLOCKS

22
27



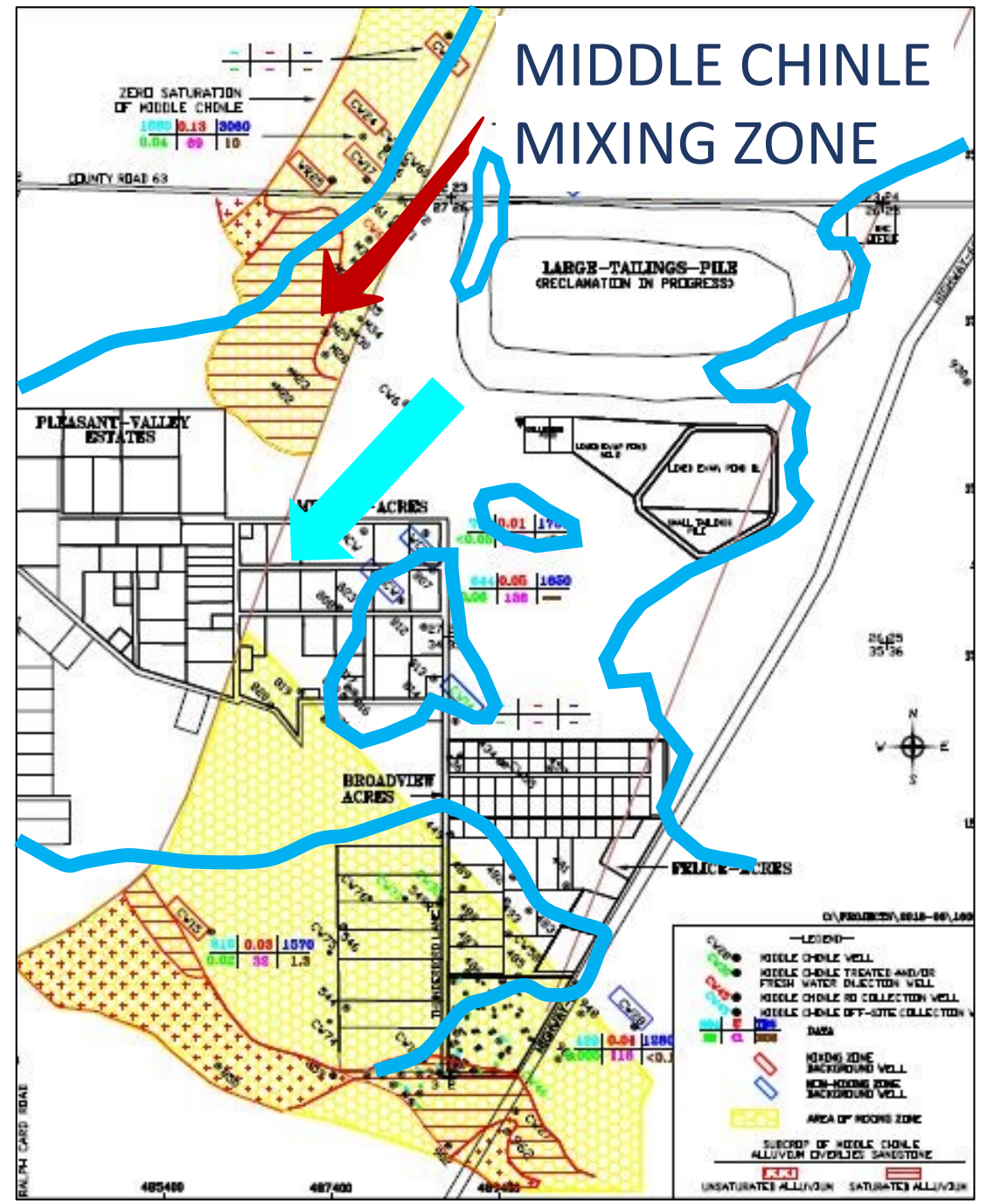
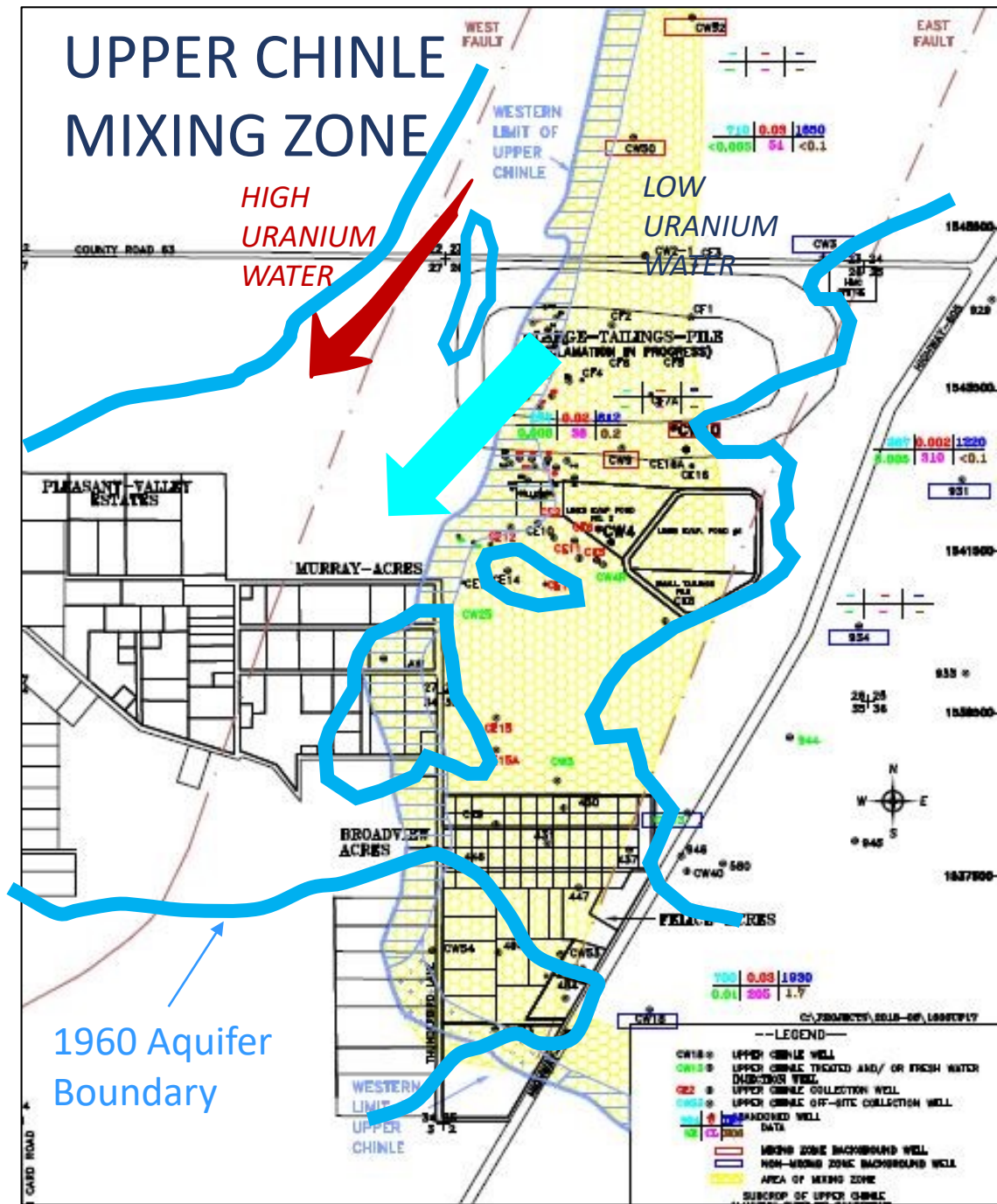
HOMESTAKE MILL AND ADJACENT PROPERTIES ~ GRANTS, NM ~ TOWNSHIP-11&12N, RANGE-10W

DATE: 3/2/18

FIGURE 6.3-11. URANIUM CONCENTRATIONS OF THE MIDDLE CHINLE AQUIFER, 2017, mg/l

SCALE: 1"=1600'

PAGE: B 3-27



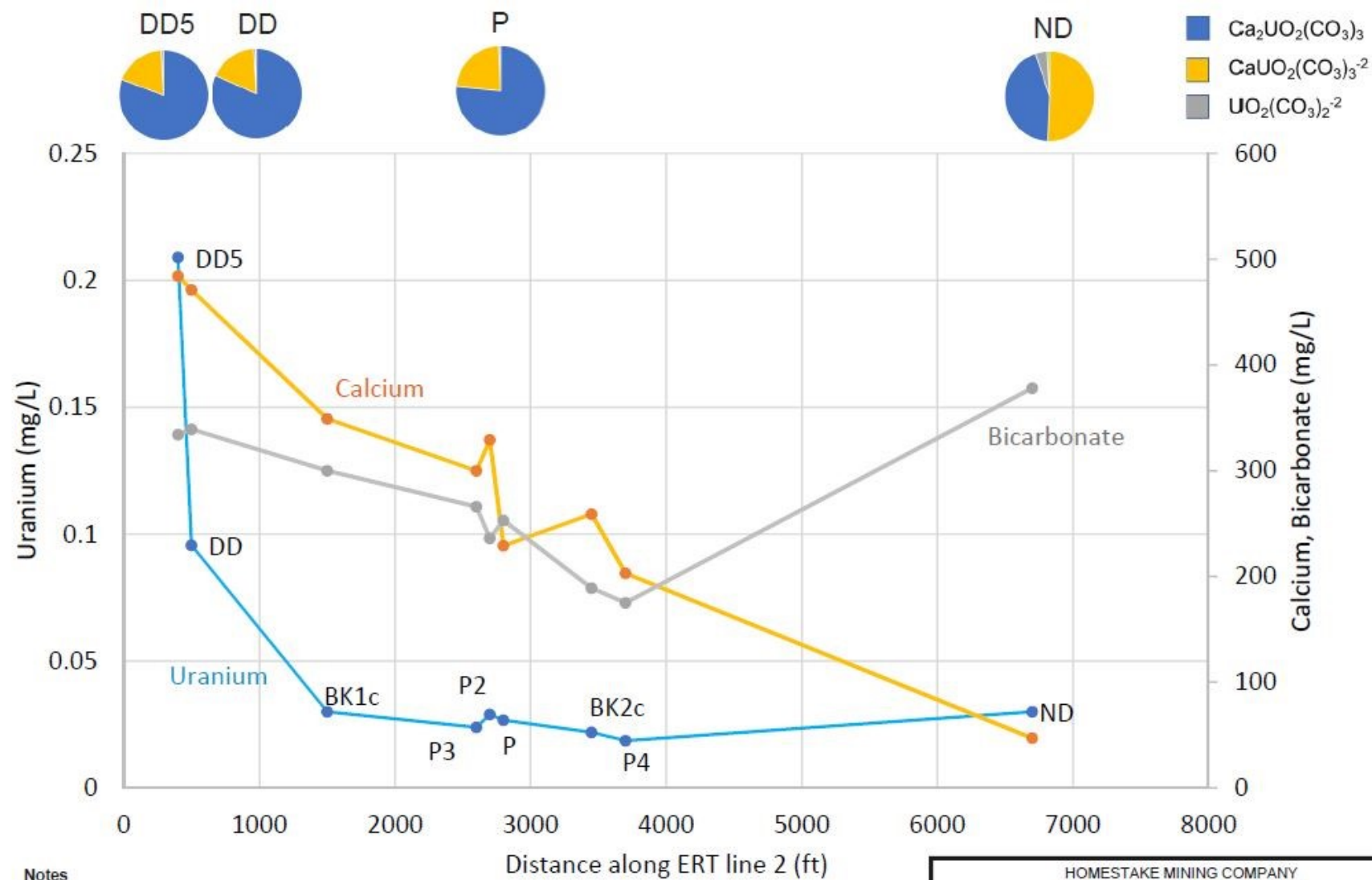
CHINLE NON-MIXING ZONE BACKGROUND

- STILL UNDER REVIEW BY EPA AND NMED

NEXT STEPS

- BRIEF UPPER LEVEL EPA/NM MANAGEMENT AND MAKE RECOMMENDATIONS ON BACKGROUND – OCTOBER 2019
- MEET WITH NRC TO DISCUSS BACKGROUND – OCTOBER 2019
- HOMESTAKE MEETS WITH EPA MANAGEMENT –

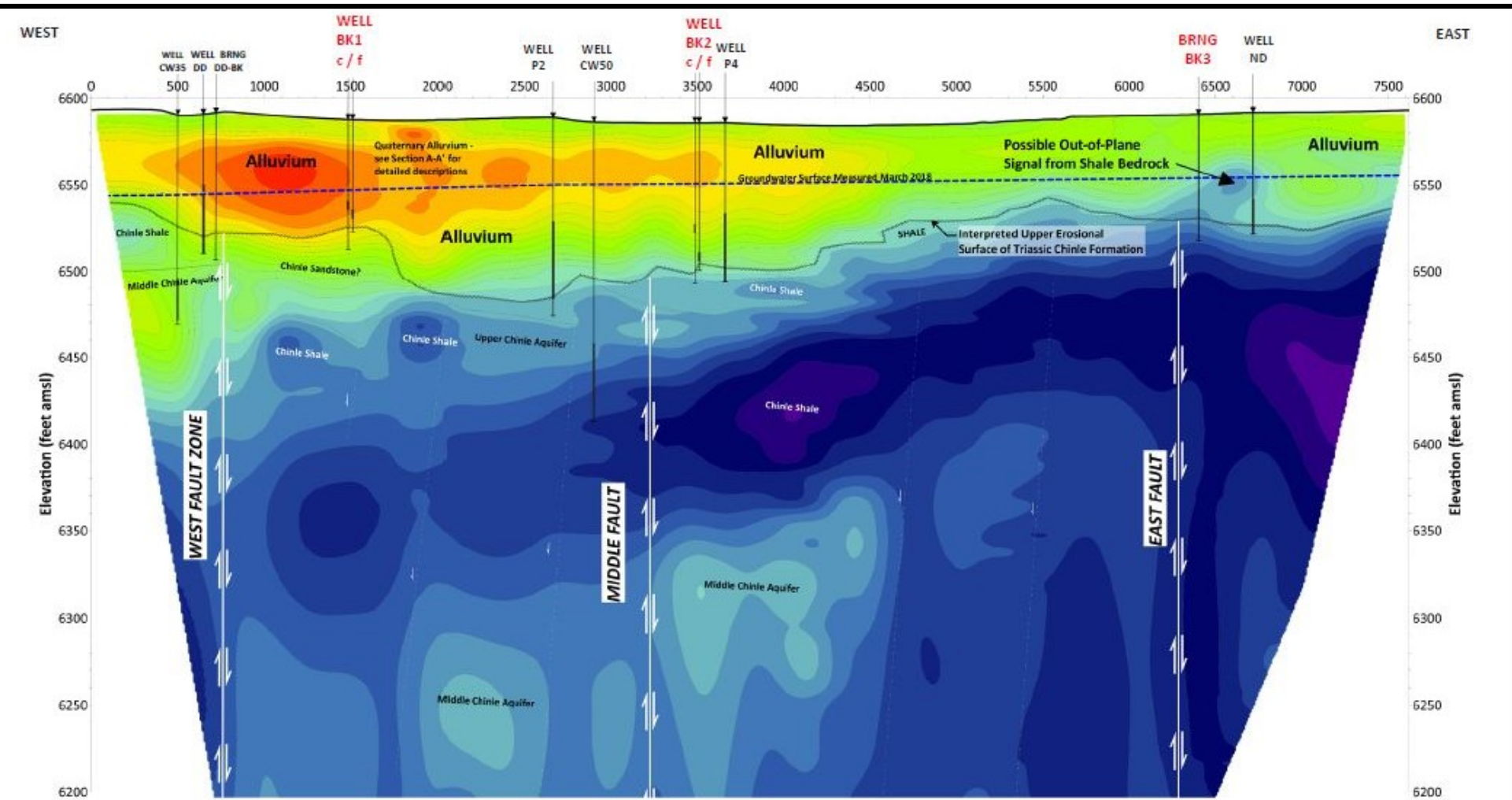
OTHER SLIDES



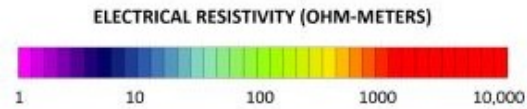
Notes
ft – feet
mg/L – milligram per liter

HOMESTAKE MINING COMPANY
GRANTS RECLAMATION PROJECT
SUPPLEMENTAL BACKGROUND SOIL AND GROUNDWATER
INVESTIGATION REPORT

GROUNDWATER CALCIUM,
BICARBONATE, AND URANIUM



VERTICAL EXAGGERATION = 10X



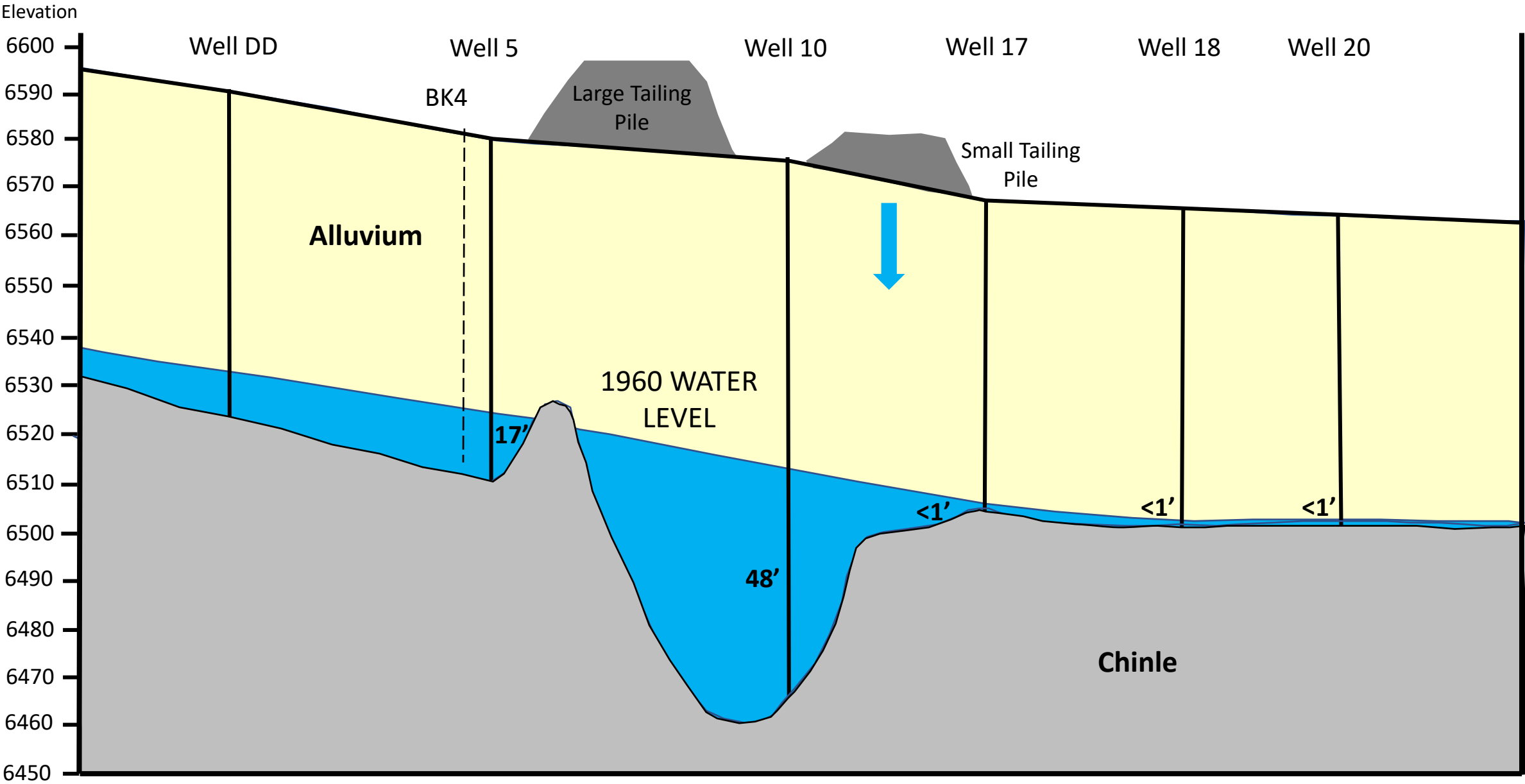
HOMESTAKE MINING COMPANY
GRANTS RECLAMATION PROJECT
SUPPLEMENTAL BACKGROUND SOIL AND GROUNDWATER
INVESTIGATION REPORT

ERT LINE 2
2D INVERSION MODEL

C

HYDROGEOLOGIC CROSS SECTION C-C'

C'





Notes

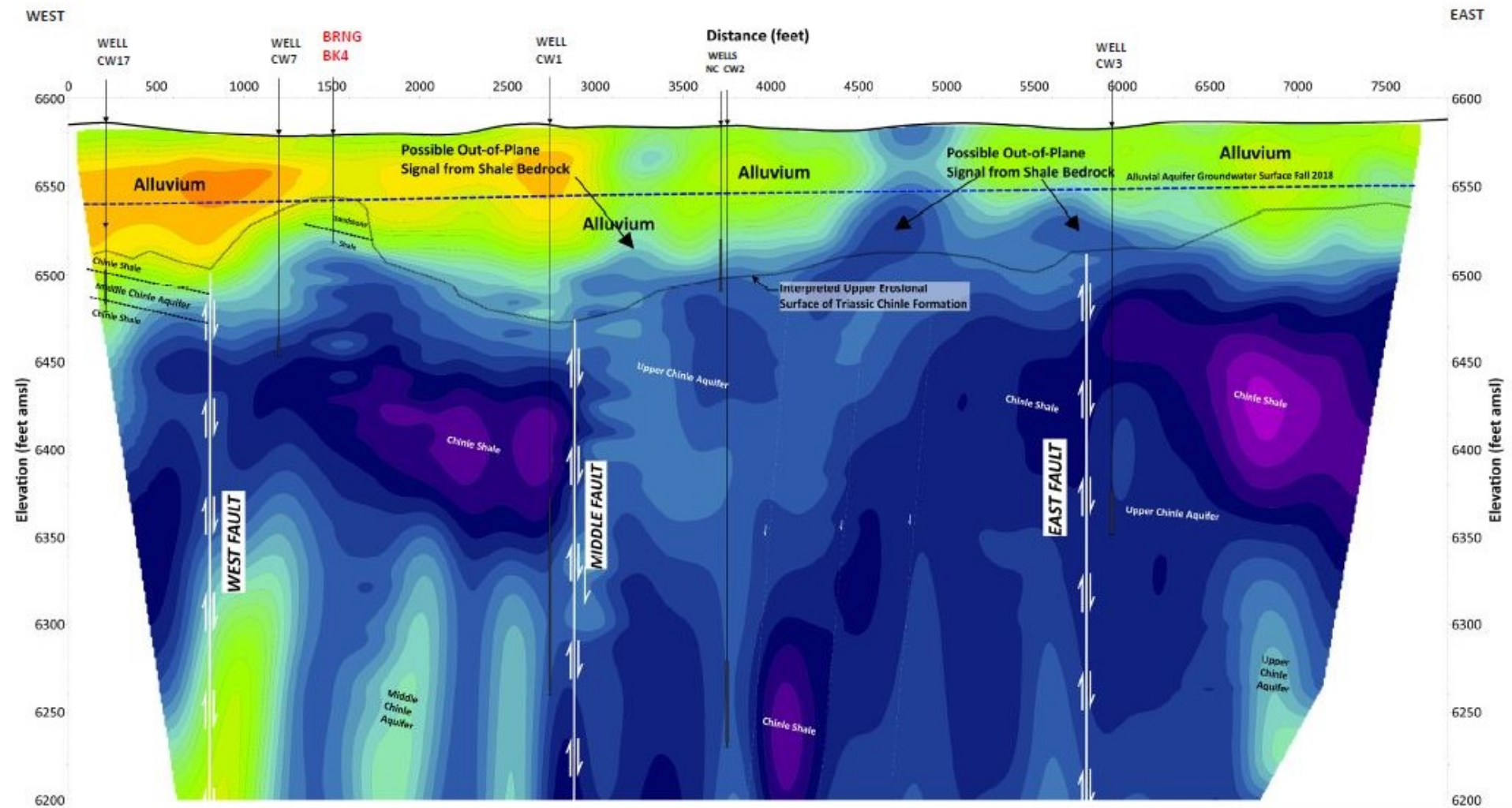
All diagrams are at the same horizontal scale
 Ca – calcium
 CO₃ – carbonate
 HCO₃ – bicarbonate
 K – potassium
 meq/l – milliequivalent per liter
 Mg – magnesium
 Na – sodium
 SO₄ – sulfate

HOMESTAKE MINING COMPANY
 GRANTS RECLAMATION PROJECT
 SUPPLEMENTAL BACKGROUND SOIL AND GROUNDWATER
 INVESTIGATION REPORT

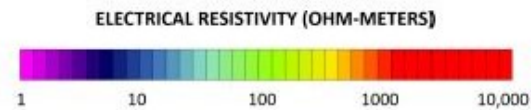
STIFF DIAGRAMS ACROSS THE CHANNEL

CHRONOLOGY FOR 2019 HOMESTAKE/ARCADIS SUPPLEMENTAL BACKGROUND STUDY

- FEBRUARY 13, 2019 – *Homestake Submits Work Plan*
- MARCH 13, 2019 – *EPA/NM/Homestake Meeting on Modifications*
- MAY 2, 2019 – *EPA/NM/Homestake Collaborate on Drilling Locations*
- MAY 14, 2019 – *Homestake Submits Revised Work Plan*
- JUNE 18, 2019 – *EPA/NM Meet with BVDA, MASE, Congress. Staffers*
- AUGUST 14, 2019 – *EPA/NM/Homestake Meeting on Results*
- AUGUST 21, 2019 – *EPA Panel of Experts Discuss ARCADIS Results*
- SEPTEMBER 10, 2019 – *Homestake presents 2019 Results to EPA Panel*
- SEPTEMBER 12, 2019 – *EPA/NM Meet with BVDA and MASE*
- SEPTEMBER 17, 2019 – *EPA/NM MEET WITH HOMESTAKE*



VERTICAL EXAGGERATION = 10X



HOMESTAKE MINING COMPANY
GRANTS RECLAMATION PROJECT
SUPPLEMENTAL BACKGROUND SOIL AND GROUNDWATER
INVESTIGATION REPORT

ERT LINE 1 2D INVERSION MODEL